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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,226	10/09/2003	Koji Irikura	0666.1400002	6480

26111 7590 04/27/2005

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EXAMINER	
VANAMAN, FRANK BENNETT	
ART UNIT	**PAPER NUMBER**
3618	

DATE MAILED: 04/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/681,226	IRIKURA ET AL.	
	Examiner	Art Unit	
	Frank Vanaman	3618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 March 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *16-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *16-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed March 1, 2005 has been entered.

Status of Application

2. Claims 16-25 are pending.

Claim Rejections 35 USC §103

3. The pertinent portions of 35 USC 103 may be found in a previous office action.

4. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hopkins et al. (US 4,174,762) in view of Ishino et al. (US 5,535,840). Hopkins et al. teach an apparatus for steering and driving a vehicle including a first transmission (32, 40, 42, 44, 46, 48, 50, etc.) interposed between a prime mover (15) and drive wheel elements (12, 14), including a variable displacement pump (30), the speed and direction of which may be adjusted, and variable displacement motor (32), a second transmission (98, 100, 102, 104, 106, etc.) which causes differential drive between the two sides for steering, a steering device (96, 112, 114) which causes step-less increase or decrease (control through 112) of a second motor (98) to achieve differential steering; wherein a reverse operation comprises arranging for the turning of the pump (30) in the opposite direction (col. 3, lines 48-51), and the changing of the steering direction (through 116) such that the steering transmission is switched to the opposite direction. While Hopkins et al. fail to specifically state that the reverse control both shifts the direction of the first pump and the steering direction control valve (116) it is deemed an inherent feature, in that the switching of the steering control direction is expressly taught as being associated with the engagement of a reverse drive mode (col. 4, lines 15-17). While Hopkins et al. fails to explicitly teach the combined controls (112, 114, operated by an unreferenced lever element, as discussed at col. 3, lines 12-30) as having a full left and right turning position, it is understood to be an inherent feature that a full position would

constitute a maximum opening of valve 112, in combination with a desired direction selected with valve 114.

The reference to Hopkins et al. fails to teach a variable slope to the steering control, wherein an early period of the movement of the control is characterized by a gradual slope and a later period is characterized by a steep slope. Ishino et al. teach a steering arrangement wherein early periods of steering control movement from a neutral position are characterized by a shallow slope, and later periods are characterized by a steeper slope (see figure 8). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the steering arrangement taught by Hopkins et al. with the variable steering slope arrangement taught by Ishino et al. for the purpose of providing a steering control arrangement which is not susceptible to over-steer for small steering control movements.

As regards claims 17-18, while Hopkins et al. fails to teach the reversing control as being a pedal or handle, both control pedals and control levers provided with handles are extremely old and well known as vehicle operator interface devices, and as such, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the reversing control as either a handle or a pedal for the purpose of allowing a user to operate the function using a commonly known interface device.

5. Claims 19-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hopkins et al. in view of Ishino et al. and Seaberg (US 4,471,669). The reference to Hopkins et al. as modified by Ishino et al., is discussed above and further teaches that the use of separate steering and driving pumps and motors (86, 80; 50, 54) having variable displacement elements (86a, 50a, 54a) is old and well known. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the combined steering and driving system taught by Hopkins et al. and modified by the inclusion of a variable slope steering control as taught by Ishino et al., with separate variable displacement pumps and motors, as also taught by Ishino et al. for the purpose of insuring a separate source of supply for each function, so as to prevent

pressure or capacity robbing between the two systems, to the point the engine is capable of driving both pumps.

The references to Hopkins et al. as modified by Ishino et al. and fail to teach the steering transmission as including a variable displacement motor. Seaberg teaches that it is old and well known to separate out the pump and motor sets for driving (26, 30) and steering (28, 32), each being of variable displacement. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the steering motor of the system of Hopkins et al. as modified by Ishino et al., as suggested by Seaberg in order to reduce the quantity of external extra valving, and to use a minimum number of different types of components (i.e., the avoidance of plural differing types of motors or pumps).

As specifically regards claims 20, 21, 23 and 25, the references fail to specifically teach the reversing control as being a pedal or handle and the speed control device as being a pedal, in that the precise nature of the control devices are not mentioned. Both control pedals and control levers provided with handles are extremely old and well known as vehicle operator interface devices, and as such, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the reversing control as either a handle or a pedal for the purpose of allowing a user to operate the function using a commonly known interface device. As more particularly regards claim 25, the use of an acceleration pedal which causes the acceleration of a vehicle without regard to the direction the transmission is set to drive, is extremely old and well known, and it would have been obvious to one of ordinary skill in the art at the time of the invention to use an accelerator pedal type interface in that it is universally familiar to vehicle operators.

Response to Comments

6. Applicant's comments concerning the claims as amended and the prior art as previously applied, are noted. The examiner agrees that the reference to Hopkins et al as applied by itself, to the previously pending claims, does not anticipate the claims as now amended, and similarly the references of Hopkins et al. and Seaberg do not render obvious the claims as now amended. Note the reference to Ishino et al., cited in a

related parent application, and now applied, which teaches the well-known variable steering slope arrangement.

Conclusion

7. Any inquiry specifically concerning this communication or earlier communications from the examiner should be directed to F. Vanaman whose telephone number is 571-272-6701.

Any inquiries of a general nature or relating to the status of this application may be made through either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A response to this action should be mailed to:
Mail Stop _____
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450,
Or faxed to one of the following fax servers:
Regular Communications/Amendments: 703-872-9326
After Final Amendments: 703-872-9327
Customer Service Communications: 703-872-9325

F. VANAMAN
Primary Examiner
Art Unit 3618

4/25/05